

Claim Listing:

The following claims replace all pending claims in this matter.

76. (Currently Amended) An array comprising several different particle attached ligands, wherein different particle-attached ligands are randomly distributed throughout the array, wherein different ligands are attached to different particles, and said particles are encoded with a chemical or physical characteristic which fluoresces and that permits identification of the ligand or ligands attached thereto and, while fluorescing, permits distinguishing of the individual particle-attached ligands including distinguishing different particle-attached ligands from each other, and wherein said particles are in a planar defined area on the surface of a substrate and wherein said particles are affixed to said substrate at a density greater than that achieved by bringing the particles within a distance from each other less than the diameter of the particles in a loosely packed, ordered array.

77. (Previously Presented) The array of claim 76 wherein the particles are affixed to the surface of the substrate.

78. (Previously Presented) The array of claim 76 wherein the ligands are proteins.

79. (Previously Presented) The array of claim 76 wherein the ligands are nucleic acids.

80. (canceled)

81. (Previously Presented) The array of proteins according to claim 78, wherein different proteins bind to different cell types.

82. (Previously Presented) The array of proteins according to claim 78, wherein the proteins are monoclonal antibodies.

83. (Currently Amended) The array of according to claim 79 wherein the nucleic acids are oligonucleotides of DNA or RNA.

84. (Previously Presented) The array according to claim 76, wherein the substrate is a semiconductor.

85. (Previously Presented) The array according to claim 84 wherein the substrate is an electrode.

86. (Currently Amended) The array according to claim 76, wherein the chemical ~~or physical~~ characteristic is a chemical tag.

87. (canceled)

88. (Previously Presented) The array according to claim 77, wherein the particles are affixed to the substrate by chemical bonding.

89. (Previously Presented) The array according to claim 76, wherein the particles are exposed to liquid containing or suspected of containing an analyte.

90. (Previously Presented) The array according to claim 89, wherein the ligands are nucleic acids capable of hybridizing with one or more analytes contained within the liquid.

91. (Currently Amended) An article of manufacture composition comprising ~~two~~ one or more of any of the arrays defined in claim 76 to 79, 81 to 86 and 88 to 90.

92. (Previously Presented) The article of manufacture of claim 91 wherein the location of each array on said substrate in combination with the physical or chemical characteristic indicates the types of ligands therein.

93. (Currently Amended) The array according to claim 86, wherein the chemical tag is an fluorescent oligonucleotide.

94. (Currently Amended) The array of claim 76 wherein the ~~density is such that the~~ particles assume a hexagonal configuration.

95. (Previously Presented) The array of claim 76 wherein the size of the particles is one to two microns.

96. (Previously Presented) The array of claim 76 wherein the distances between the particles are the same.

97. (Newly Added) An array comprising several different particle attached ligands, wherein different particle-attached ligands are randomly distributed throughout the array, wherein different ligands are attached to different particles, and said particles are encoded with a chemical characteristic which fluoresces and that permits identification of the ligand or ligands

attached thereto and, while fluorescing, permits distinguishing the individual particle including distinguishing different particle from each other, and wherein said particles are in a planar defined area on the surface of a substrate and wherein said particles are affixed to said substrate in an ordered array where the particles are not touching each other.

98. (Newly Added) The array of claim 97 wherein the ligands are proteins.

99. (Newly Added) The array of claim 97 wherein the ligands are nucleic acids.

100. (Newly Added) The array according to claim 97 wherein the nucleic acids are oligonucleotides of DNA or RNA.

101. (Newly Added) The array of claim 97 wherein the particles are encoded with a binary encoding system.

102. (Newly Added) The array of claim 97 wherein the encoding is with oligonucleotides attached to the particles.

103. (Newly Added) The array of claim 101 wherein the binary encoding is with oligonucleotides attached to the particles.

104. (Newly Added) The array of claim 97 wherein the particles are fluorescently encoded.

105. (Newly Added) The array of claim 97 wherein the particles are made of polystyrene.

106. (Newly Added) The array according to claim 97, wherein the substrate is a semiconductor.

107. (Newly Added) The array of claim 97 wherein the optical label for the analytes is fluorescence.

108. (Newly Added) The array of claim 97 wherein the particles assume a hexagonal configuration.

109. (Newly Added) The array of claim 97 wherein the size of the particles is one to two microns.

110. (Newly Added) The array of claim 97 wherein the distances between the particles are the same.

111. (Newly Added) A substrate comprising, on its surface, two or more of the arrays defined in claim 97.

112. (Newly Added) The substrate of claim 111 wherein the location of each array on said substrate in combination with the physical or chemical characteristic indicates the types of ligands therein.

113. (Newly Added) The array of claim 76 wherein the particles are encoded with a binary encoding system.

114. (Newly Added) The array of claim 76 wherein the encoding is with oligonucleotides attached to the particles.

115. (Newly Added) The array of claim 113 wherein the binary encoding is with oligonucleotides attached to the particles.